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EDITORIAL

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THE CONFINEMENT OF ATHLETES BY COVID-19: EFFECTS ON TRAINING, WELLBEING AND THE CHALLENGES WHEN RETURNING TO COMPETITION

The current COVID-19 pandemic has resulted in a global health emergency of unprecedented magnitude. Most governments around the world have enforced isolation strategies in an effort to curb the spread of the virus and, in so doing, they have hopefully afforded hospitals much needed time to prepare for the high patient influx (Sarto et al., 2020). These confinement strategies have also had a profound impact on the majority of athletes, restricting their movement and limiting, or prohibiting, their access to training facilities. Suddenly, athletes are no longer able to follow their normal training schedules and major sport events have been cancelled or postponed.

Although the decreased training load during the initial weeks of lockdown may have had a positive super-compensation and recovery effect, the long-term effects of detraining are detrimental to the training status of elite athletes (Coyle et al., 1984). Mujika and Padilla (2000), for example, reported a decrease of 4 to 14% on the VO_{2max} within 4 weeks of training cessation. This reduction is explained by a substantial drop of 5 to 12% in blood volume (Coyle et al., 1986; Houmard et al., 1992) which results in an increase of 5 to 10% in the submaximal heart rate (Mujika & Padilla, 2000). At a functional level, a reduction of 9 to 25% is observed on time to exhaustion in elite athletes (Houmard et al., 1992; Houston et al., 1979). Additionally, detraining has a negative impact on muscle activity and the motion range of joints (Houmard et al., 1992; Mujika & Padilla, 2000) and athletes, which can result loss efficiency and fine motor tuning which can lead to small decrements in technique.

Last, but certainly not least, isolation and the absence of normal training habits, along with the cancellation or postponement of major events and competitions could adversely affect mental health and well-being (Mann et al., 2020). Most athletes focus their energy on peaking at a specific major event, such as the Olympics. The sudden enforcement of training restrictions, together with the re-scheduling of competitions and countries' dyssynchronous return to sport could jeopardise athletes' mental well-being. In this uncertain climate the coach and sports psychologist play an important role - new training goals

need to be set, even if there is no clear indication as to when sport events will commence.

These new circumstances have resulted in athletes employing technology and online platforms to maintain some training fitness levels stimulus. Although it is impossible to replicate normal training sessions for a full 100% , however, some athletes have profited from indoor cycling, the use of a treadmill, body weight routines, exercise videos or simulators. In addition, these online platforms have also enabled athletes to besides racing and competing against each other also socialise with team-mates and colleagues.

Government policies regulating the duration of isolation periods and how strictly these are enforced differ substantially. In Europe, for example, the implementation of lockdown policies have varied from: very strict (Spain and Italy), to less strict (Netherlands), to almost non-existent (Sweden). This situation has resulted in unequal training opportunities with some athletes using training facilities as per usual whilst others are not even allowed to leave their homes. Furthermore, different timing restrictions have exacerbated these training inequalities. China, for instance, has lifted almost all restrictions and Europe is slowly easing up on its lockdown measures. Africa and South America, on the other hand, have yet to reach the peak of the COVID-19 pandemic. These differences in timing and training opportunities have seriously affected athletes' preparation for international events such as the Vuelta a España, athletics Diamond league and swimming world championships.

The pandemic is more or less under control in Europe and 'normal' training and professional sport events are slowly commencing. Certain sports have already restarted (e.g. several soccer leagues including the Bundesliga and La Liga) and other federations (e.g. cycling and Formula 1) are in the process of, or have already, announced adapted racing calendars for the remainder of the 2020 season. The limited time available and multitude organisers who still wanting to host races have resulted in racing calendars becoming very full and cluttered. This situation, combined with athletes' poor preparation and eagerness to prove themselves for the 2021 season, might increase the risk of a second epidemy for athletes and coaches as well as an elevated injury rate and highly fatigued athletes.

In our opinion, coaches and sports scientists should therefore: 1) closely monitor athletes, especially when they start competing again; 2) asses and evaluate the injury risk of each athlete before he/she returns to play or train; 3) design comprehensive training programmes which include endurance and strength components as well as technical and tactical skills training; 4) be selective in choosing events from the competitive calendar; and 5) adopt a flexible training and preparation approach, because as long as a vaccine has

been found and administered to most of us, the future will remain unpredictable.

However, and besides all these challenges and uncertainties, we are happy to see the world of elite sports starting up again.

REFERENCES

Coyle, E. F., Hemmert, M. K., & Coggan, A. R. (1986). Effects of detraining on cardiovascular responses to exercise: role of blood volume. *Journal of Applied Physiology (Bethesda, Md.: 1985)*, *60*(1), 95–99. https://doi.org/10.1152/jappl.1986.60.1.95

Coyle, E. F., Martin, W. H., Sinacore, D. R., Joyner, M. J., Hagberg, J. M., & Holloszy, J. O. (1984). Time course of loss of adaptations after stopping prolonged intense endurance training. *Journal of Applied Physiology: Respiratory, Environmental and Exercise Physiology*, *57*(6), 1857–1864. https://doi.org/10.1152/jappl.1984.57.6.1857

Houmard, J. A., Hortobágyi, T., Johns, R. A., Bruno, N. J., Nute, C. C., Shinebarger, M. H., & Welborn, J. W. (1992). Effect of short-term training cessation on performance measures in distance runners. *International Journal of Sports Medicine*, *13*(8), 572–576. https://doi.org/10.1055/s-2007-1024567

Houston, M. E., Bentzen, H., & Larsen, H. (1979). Interrelationships between skeletal muscle adaptations and performance as studied by detraining and retraining. *Acta Physiologica Scandinavica*, *105*(2), 163–170. https://doi.org/10.1111/j.1748-1716.1979.tb06328.x

Mann, R. H., Clift, B. C., Boykoff, J., & Bekker, S. (2020). Athletes as community; athletes in community: covid-19, sporting mega-events and athlete health protection. *British Journal of Sports Medicine*, bjsports-2020-102433. https://doi.org/10.1136/bjsports-2020-102433

Mujika, I., & Padilla, S. (2000). Detraining: loss of training-induced physiological and performance adaptations. Part I: short term insufficient training stimulus. *Sports Medicine (Auckland, N.Z.)*, *30*(2), 79–87. https://doi.org/10.2165/00007256-200030020-00002

Neufer, P. D., Costill, D. L., Fielding, R. A., Flynn, M. G., & Kirwan, J. P. (1987). Effect of reduced training on muscular strength and endurance in competitive swimmers. *Medicine and Science in Sports and Exercise*, *19*(5), 486–490. http://www.ncbi.nlm.nih.gov/pubmed/3683154

Sarto, F., Impellizzeri, F. M., Spörri, J., Porcelli, S., Olmo, J., Requena, B., Suarez-Arrones, L., Arundale, A., Bilsborough, J., Buchheit, M., Clubb, J., Coutts, A., Nabhan, D., Torres-Ronda, L., Mendez-Villanueva, A., Mujika, I., Maffiuletti, N. A., & Franchi, M. V. (2020). Impact of Potential Physiological Changes due to COVID-19 Home Confinement on Athlete Health Protection in Elite Sports: a

Call for Awareness in Sports Programming. *Sports Medicine (Auckland, N.Z.)*. https://doi.org/10.1007/s40279-020-01297-6